1R - 777

WORKPLANS

Date:

3-28-11

AMARILLO
921 North Bivins
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March 28, 2011

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APR 15 2011

Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505

Mr. Edward Hansen
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Legacy Reserves Operating, L.P., Monsanto '30' State #5
Groundwater Monitoring Report
NMOCD Reference 1RP-0777
Section 30, T16S, R37E
Latitude: 32.88629° N and Longitude: 103.28859 W
Lea County, New Mexico

Dear Mr. Hansen:

Talon/LPE (Talon) was retained by Legacy Reserves Operating, L.P. (Legacy) to provide environmental consulting and groundwater remediation services regarding the Monsanto '30' State #5 produced water release in Lea County, New Mexico.

The purpose of this report is to document groundwater monitoring activities that have occurred at the site from September of 2009 to September of 2010 and to prepare a scope of work for proposed groundwater monitoring activities.

Background Information

The site is located northwest in Lea County, New Mexico at GPS coordinates N Latitude: 32.88629° N and Longitude: 103.28859 W in Section 30, Township 16 South, Range 37 East. The following is a synopsis of the site history.

- In February of 2004 Safety and Environmental Solutions (SESI) conducted a site investigation regarding an unlined reserve pit at the subject site.
- In February of 2004, four (4) boreholes (BH-1, BH-2, BH-3, and BH-4)) were advanced below the pit to a depth ranging from 20-feet bgs to 70-feet bgs and soil samples were collected at five (5) feet intervals. Analytical results exhibited chloride concentrations that ranged from 64 mg/Kg to 11,200 mg/Kg.
- In April of 2004, a 40 mil polyethylene liner was installed and the excavation was then backfilled with uncontaminated soil to prevent leaching from rainwater infiltration.
- From May of 2004 to June of 2006 eight (8), two (2) inch monitor wells were installed at various locations around the site to delineate the extent of the groundwater chloride plume.

- Groundwater monitoring commenced subsequent to the initial monitor well installations in July of 2004 and continued to March of 2011.

A Topographic Map is provided as Figure 1a, Appendix A and a site vicinity aerial photograph depicting the general site location and City of Lovington water wells are provided on Figure 1b in Appendix A.

Physical Characteristics of the First Water-Bearing Zone

The primary groundwater resource under the Southern High Plains, including the site, is referred to as the Ogallala Aquifer or High Plains Aquifer. The Southern portion of the Ogallala aquifer underlies an area of about 29,000 square miles (mi^2) in western Texas and eastern New Mexico, encompassing all or part of 31 counties in Texas and 6 counties in New Mexico.

The Ogallala Aquifer has experienced acute depletion from extensive irrigation and urban demand, which have exceeded the average annual recharge rate. Recharge of the Ogallala Aquifer on the Southern High Plains occurs predominately from rainfall runoff that accumulates in ephemeral streams and playa lakes as well as direct recharge in areas that contain permeable soils such as sand hills. Recharge rates vary depending on mechanism, but averages from 0 to 1.6 inches per year.

The Ogallala Aquifer is generally unconfined and the poteniometric surface generally mirrors the land surface elevation with the regional flow direction from the northwest to the southeast. The mean regional gradient is 15 feet per mile and the typical groundwater velocity averages seven inches per day. The regional hydraulic conductivity averages 17 gallons per day per square-foot and specific yield averages 16%. The depth to groundwater at the site has historically ranged from 64 to 72 feet below ground surface (bgs) and the groundwater flow direction is to the southeast at an average of 20 feet per mile.

The composition of Ogallala groundwater is defined as mixed-cation-HCO_3, therefore, Ogallala groundwater is considered hard. Problems with scale have occurred with residential and commercial water systems that use Ogallala groundwater and often treatment strategies are employed to reduce the effects of scale. The typical total dissolved solids of Ogallala groundwater in the Hobbs-Lovington area is generally less than 500 mg/L (ppm) in areas not impacted by oil-field brines with an average pH of 7.3.

Groundwater Gradient and Flow Direction

A total of three (3) groundwater monitoring events occurred during the year 2010 on March 31, June 9, and September 16, and one (1) groundwater monitoring event was performed in March of 2011. Measurements to the depth of fluid were collected during each of the four (4) groundwater monitoring events. The results of the fluid level measurements are summarized in Table 1 in Appendix B.

The collected data was used to construct potentiometric surface maps in order to interpret the groundwater gradient and flow direction. The maps, designated Figures 2a through 2d, are presented in Appendix A.

The potentiometric surface maps indicate that the groundwater flow direction is to south southeast at an approximate gradient of 0.0034 feet/foot or 18 feet per mile. Groundwater levels at the subject site have exhibited a steady decline of an average of 1.49 feet for the six-month monitoring period. The decline in groundwater levels appears to be associated with a regional trend of declining groundwater levels for the Ogallala Aquifer.

Groundwater Analytical Results

During the first quarter, March 2010, groundwater monitoring event, groundwater samples were collected from monitor wells MW-1 through MW-8. Groundwater samples collected during the event exhibited the following analytical results:

- Total chloride (Cl) concentrations ranged from 20.7 mg/L to 681 mg/L. Total Cl concentrations exceeded the NMWQCC groundwater standard of 250 mg/L in groundwater samples collected from monitor well MW-1, MW-6, MW-7, and MW-8.
- Total dissolved solids (TDS) concentrations ranged from 348 mg/L to 1,110 mg/L. The TDS concentration exceeded the NMWQCC groundwater standard of 1,000 mg/L in the groundwater sample collected from monitor well MW-1.

During the second quarter, June 2010 sampling event, groundwater samples were collected from monitor wells MW-1 through MW-8. The groundwater samples that were collected exhibited the following analytical results:

- Total Cl concentrations ranged from 21.5 to 505 mg/L. Total Cl concentrations exceeded the NMWQCC groundwater standard of 250 mg/L in groundwater samples collected from monitor well MW-1, MW-6, MW-7, and MW-8.
- TDS concentrations ranged from 372 mg/L to 1,120 mg/L. TDS concentrations exceeded the NMWQCC groundwater standard of 1,000 mg/L in groundwater samples collected from monitor wells MW-1, MW-6, MW-7, and MW-8.

During the third quarter, September 2010 sampling event, groundwater samples were collected from monitor wells MW-1 through MW-8. The groundwater samples that were collected exhibited the following analytical results:

- Total Cl concentrations ranged from 17.1 mg/L to 524 mg/L. Total Cl concentrations exceeded the NMWQCC groundwater standard of 250 mg/L in groundwater samples collected from monitor well MW-1, MW-6, MW-7, and MW-8.
- TDS concentrations ranged from 347 mg/L to 1,640 mg/L. The TDS concentrations exceeded the NMWQCC groundwater standard of 1,000 mg/L in the groundwater sample collected from monitor well MW-8.

During the first quarter, March 2011 sampling event, groundwater samples were collected from monitor wells MW-1 through MW-8. The groundwater samples that were collected exhibited the following analytical results:

- Total Cl concentrations ranged from 19.0 mg/L to 432 mg/L. Total Cl concentrations exceeded the NMWQCC groundwater standard of 250 mg/L in groundwater samples collected from monitor well MW-6, MW-7, and MW-8.
- TDS concentrations ranged from 399 mg/L to 1,030 mg/L. The TDS concentrations exceeded the NMWQCC groundwater standard of 1,000 mg/L in groundwater samples collected from monitor wells MW-6 and MW-8.

Monitor wells MW-1, MW-6, MW-7 and MW-8 have consistently exhibited total Cl and TDS concentrations exceeding the NMWQCC groundwater standards. The chloride plume is not stable and appears to be migrating down-gradient. Currently, the groundwater chloride plume is not delineated down-gradient.

The results of the laboratory analyses are summarized in Table 2 – Summary of Groundwater Analytical Results in Appendix B.

Summary of Findings

- The groundwater flow direction is to southeast at an approximate gradient of 0.0034 feet/foot or 18 feet per mile.
- Groundwater levels at the subject site have exhibited a steady decline averaging 1.49 feet for the year 2010 that appears to be associated with a regional trend of declining groundwater levels for the Ogallala Aquifer.
- Monitor wells MW-1, MW-6, MW-7, and MW-8 have exhibited Cl and TDS concentrations exceeding the NMWQCC groundwater standards. The chloride plume is currently not delineated down gradient.

Recommendations

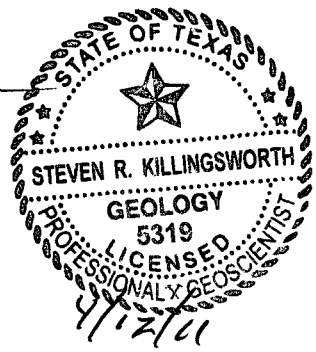
Based upon the results of the four (4) quarterly groundwater monitoring events performed in 2010 and 2011, Talon proposes the following actions:

- Continue to perform quarterly groundwater monitoring events in accordance with NMOCD directives.
- Install one (1) four (4) inch recovery well near the center of the chloride plume and perform a pump test to acquire data for a remediation system design.
- Install one (1) two (2) inch monitor well (MW-9) down-gradient from monitor well MW-7 in order to delineate the chloride plume.
- Survey the top of casing elevations for monitor wells MW-5, MW-6, MW-7 and MW-8 and the newly installed MW-9.
- Prepare a remediation plan designed to pump and dispose of impacted groundwater and to inhibit migration of the chloride plume.

If you have any questions or require further information, please contact Mr. Kyle Waggoner or me at (432) 522-2133.

Sincerely,

Steven R. Killingsworth, P.G.
Senior Project Manager



Cc: Mr. Berry Johnson, Legacy Reserves Operating, L.P.
Mr. Geoffrey R. Leking, NMOCD

Appendices:

Appendix A

Figures

Figure 1a – Site Vicinity Topographic Map

Figure 1b – Site Vicinity Aerial Photograph

Figure 2 – Site Map

Figure 2a – Groundwater Gradient Map – 3/10/2011

Figure 2b - Groundwater Gradient Map - 3/27/2010

Figure 2c - Groundwater Gradient Map - 6/9/2010

Figure 2d - Groundwater Gradient Map - 9/27/2010

Figure 3a - Groundwater Chloride Concentration Map - 3/11/2011

Figure 3b - Groundwater Chloride Concentration Map - 3/27/2010

Figure 3c - Groundwater Chloride Concentration Map - 6/9/2010

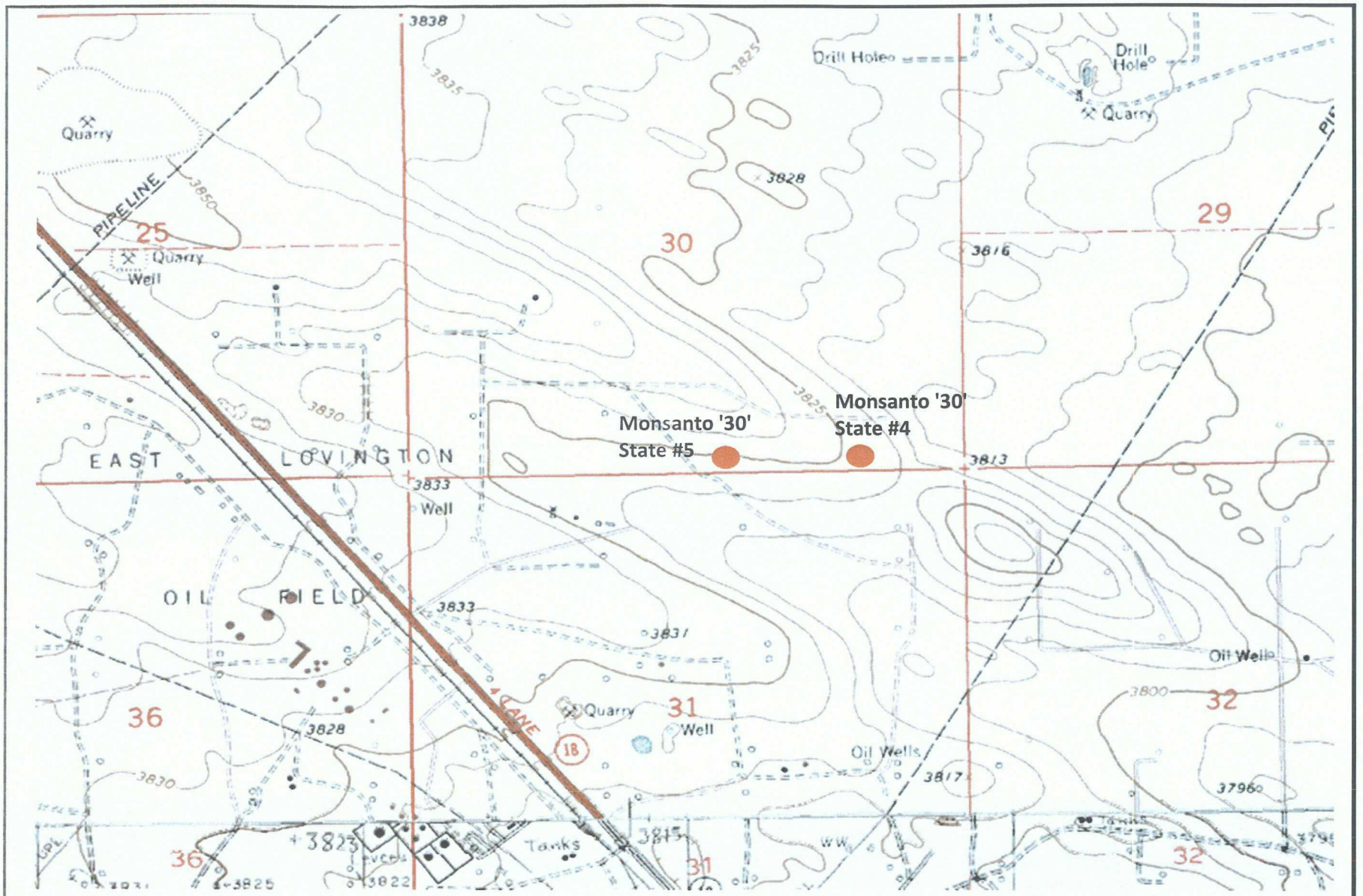
Figure 3d - Groundwater Chloride Concentration Map - 9/9/2010

TALON LPE

Aerial Photograph
Monsanto '30' State #4 & #5
Lea County, New Mexico
Date: March 9, 2011
Prepared by: S. R. Killingsworth, PG

Legacy Reserves Op, LP
303 W. Wall - Stuite 1600
Midland, Texas 79702

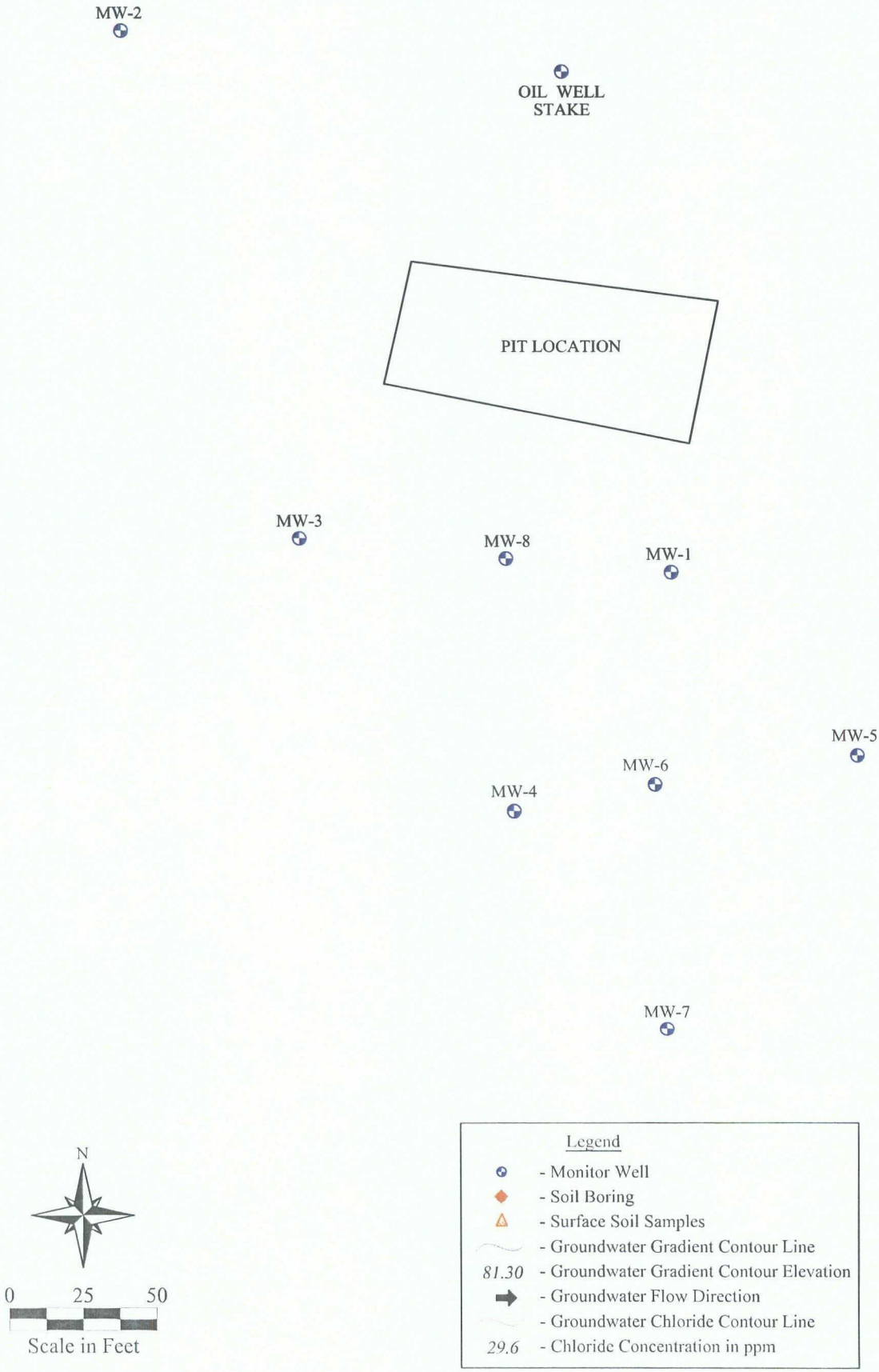
Not to scale



TALON LPE

Figure 1b - Topographic Map
Monsanto '30' State #4 & #5
Date: March 9, 2011
Prepared by: S. R. Killingsworth, PG

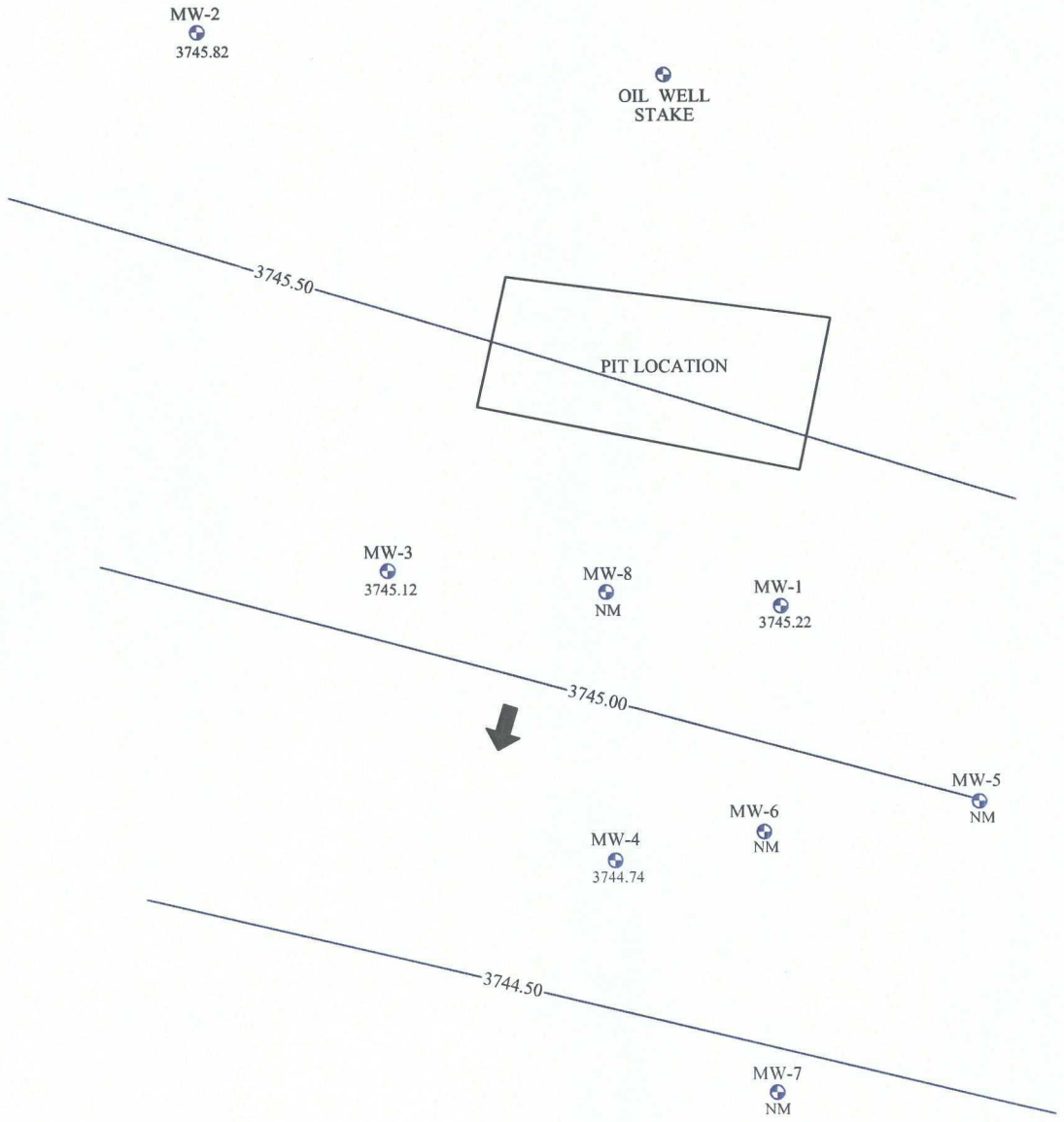
Legacy Reserves Operating, LP
303 W. Wall, suite 1600
Midland, Texas 79702
Not to scale



TALON LPE

Date: 03/10/2011
Scale: 1" = 50'
Drawn By: TJS

Monsanto '30' State #5
Legacy Reserves Operating, L.P.
Hobbs, Lea County, New Mexico
Figure 1 - Site Plan



Gradient
0.0031 ft/ft
16.29 ft/mi

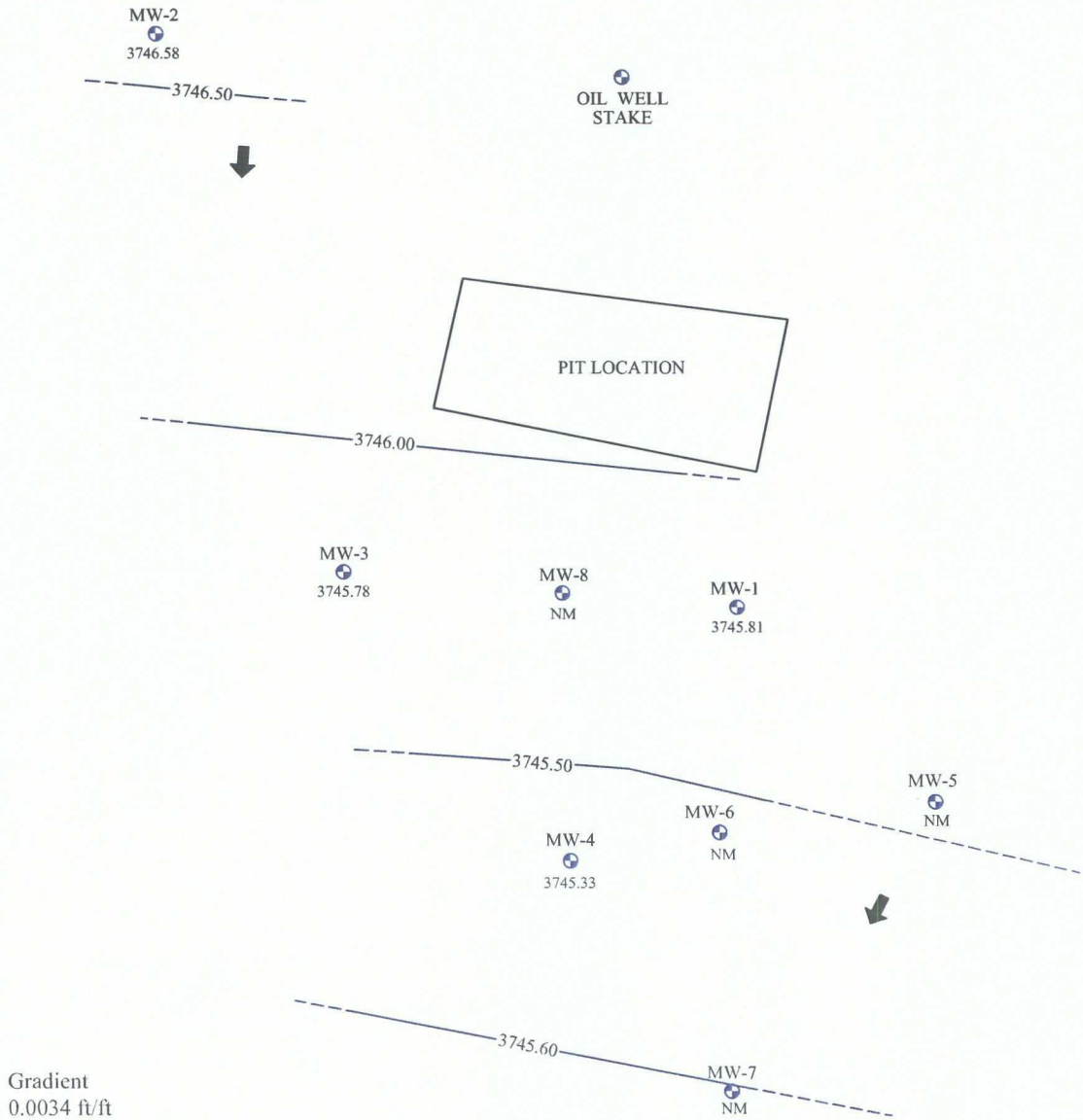
Legend

- Monitor Well
- Soil Boring
- Surface Soil Samples
- Groundwater Gradient Contour Line
- *81.30* - Groundwater Gradient Contour Elevation
- Groundwater Flow Direction
- Groundwater Chloride Contour Line
- *29.6* - Chloride Concentration in ppm

TALON LPE

Date: 03/28/2011
Scale: 1" = 60'
Drawn By: TJS

Monsanto '30' State #5
Legacy Reserves Operating, L.P.
Hobbs, Lea County, New Mexico
Figure 2a - Groundwater Gradient Map, (03/10/2011)



Legend

- Monitor Well
- Soil Boring
- Surface Soil Samples
- Groundwater Gradient Contour Line
- *81.30* - Groundwater Gradient Contour Elevation
- Groundwater Flow Direction
- Groundwater Chloride Contour Line
- *29.6* - Chloride Concentration in ppm

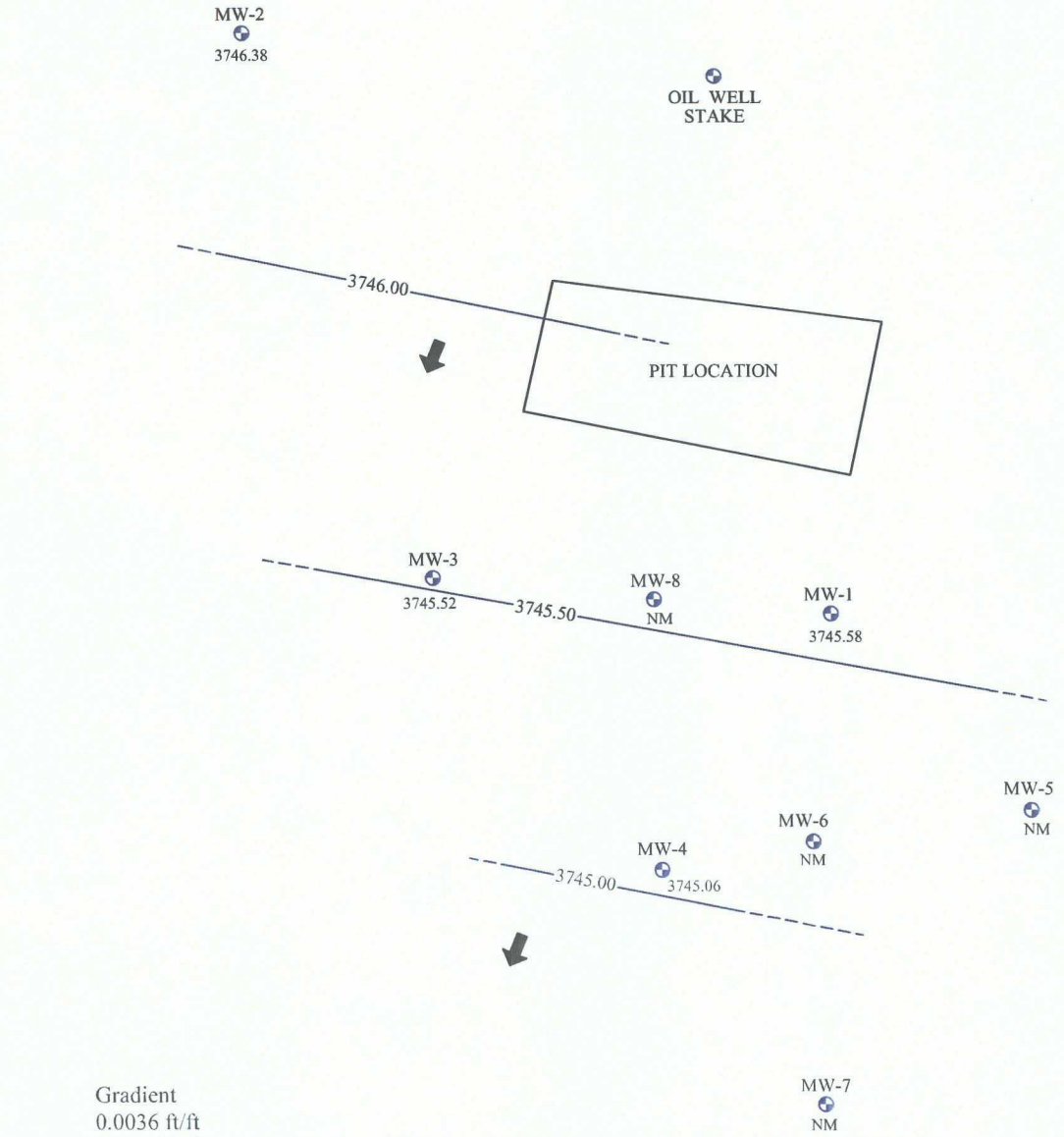
TALON LPE

Date: 03/28/2011
Scale: 1" = 60'
Drawn By: TJS

Monsanto '30' State #5

Legacy Reserves Operating, L.P.
Hobbs, Lea County, New Mexico

Figure 2b - Groundwater Gradient Map, (03/31/2010)



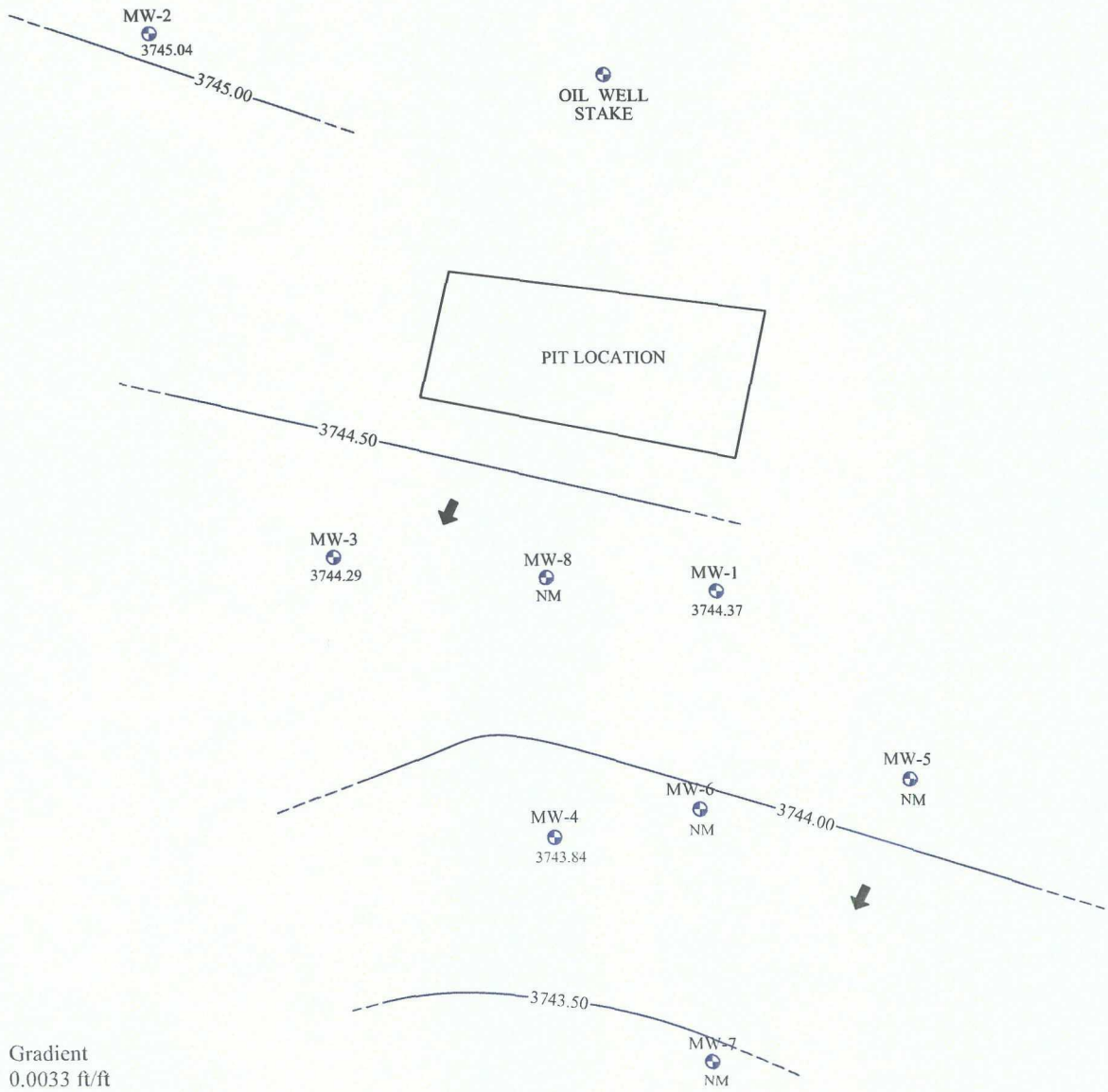
TALON LPE

Date: 03/28/2011
Scale: 1" = 60'
Drawn By: TJS

Monsanto '30' State #5

Legacy Reserves Operating, L.P.
Hobbs, Lea County, New Mexico

Figure 2c - Groundwater Gradient Map, (06/09/2010)



Gradient
0.0033 ft/ft
17.22 ft/mi

N

0 30 60

Scale in Feet

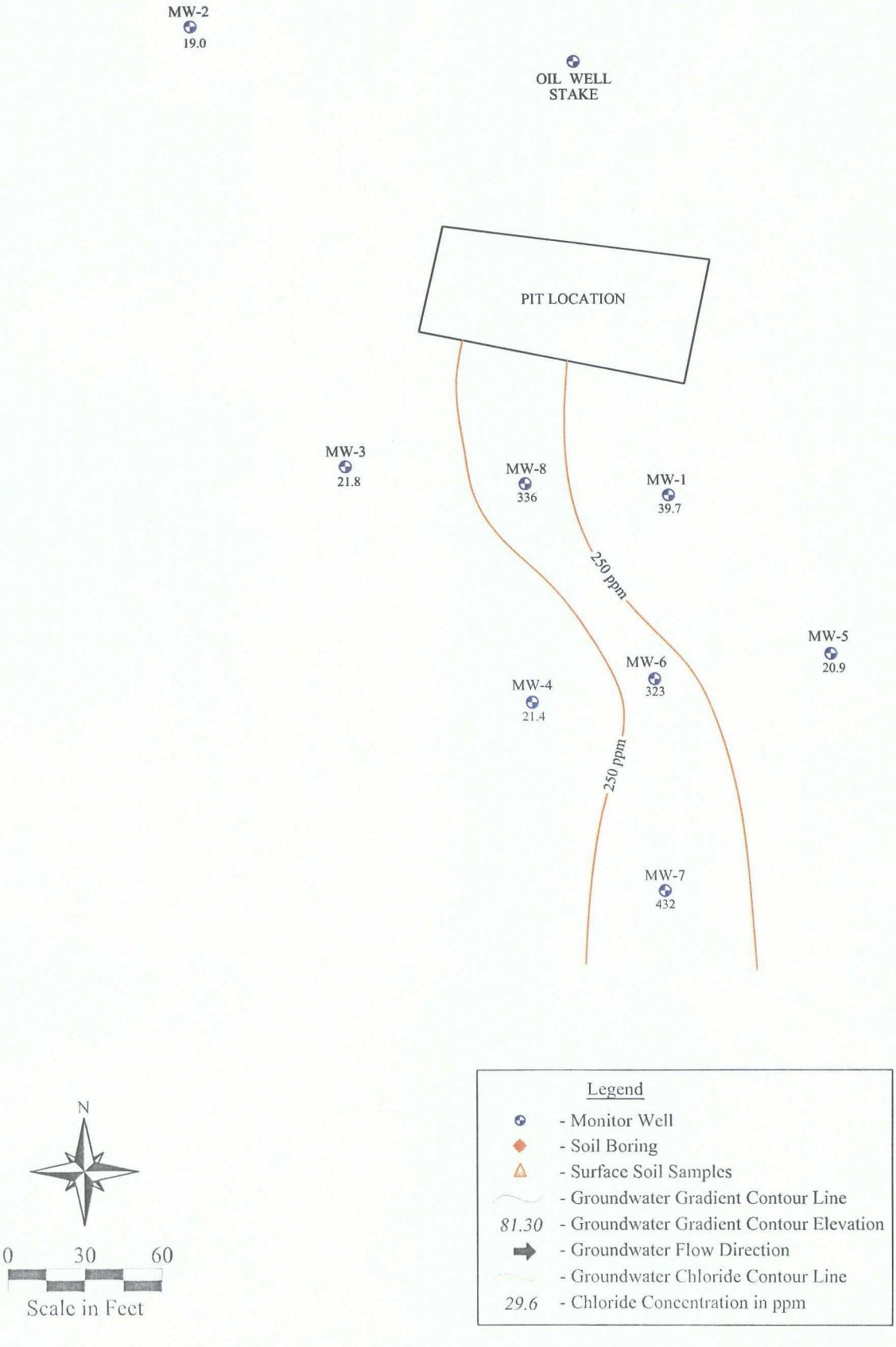
Legend

- Monitor Well
- Soil Boring
- Surface Soil Samples
- Groundwater Gradient Contour Line
- *81.30* - Groundwater Gradient Contour Elevation
- Groundwater Flow Direction
- Groundwater Chloride Contour Line
- *29.6* - Chloride Concentration in ppm

TALON LPE

Date: 03/28/2011
Scale: 1" = 60'
Drawn By: TJS

Monsanto '30' State #5
Legacy Reserves Operating, L.P.
Hobbs, Lea County, New Mexico
Figure 2d - Groundwater Gradient Map, (09/16/2010)



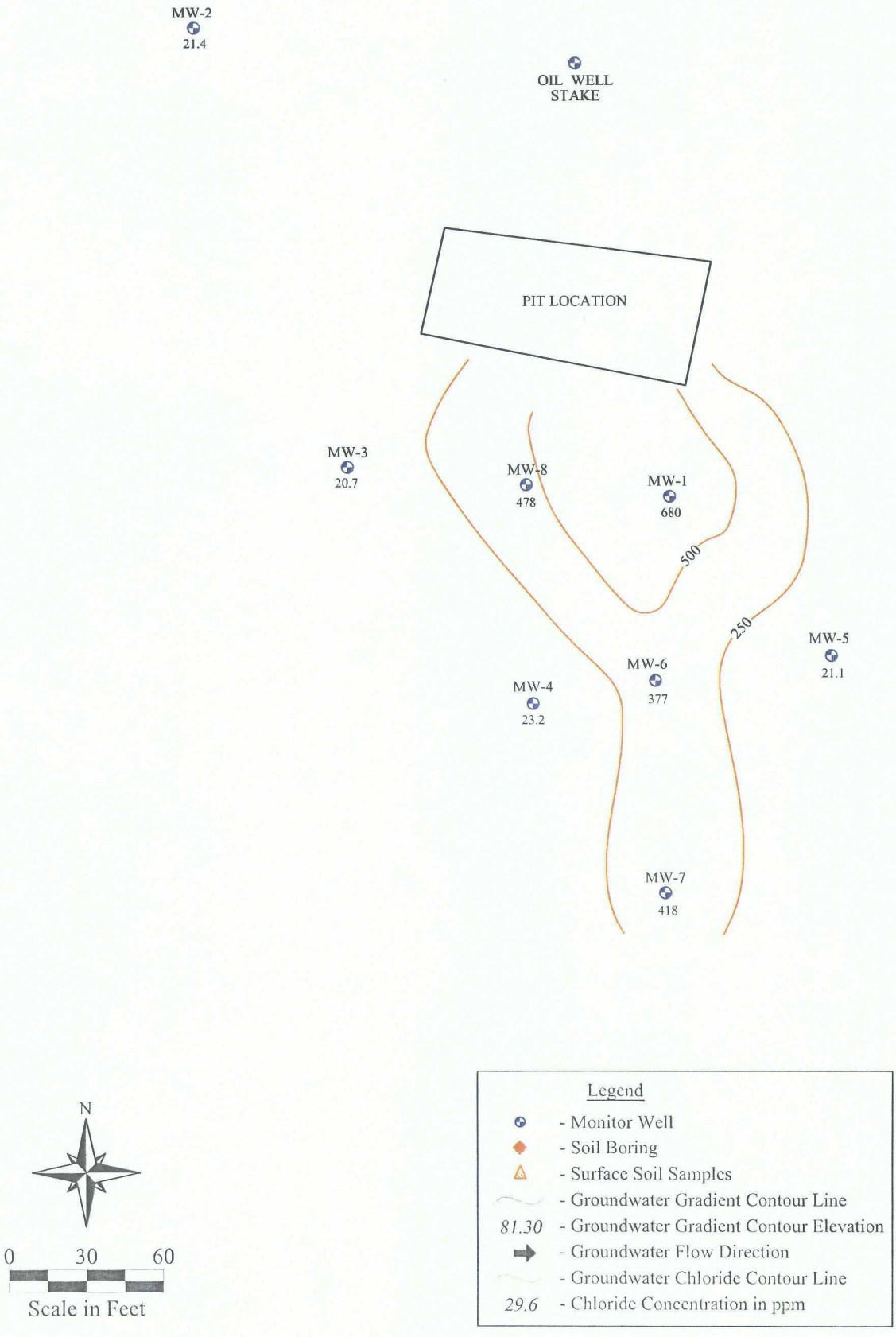
TALON LPE

Date: 03/28/2011
Scale: 1" = 60'
Drawn By: TJS

Monsanto '30' State #5

Legacy Reserves Operating, L.P.
Hobbs, Lea County, New Mexico

Figure 3a - Groundwater Chloride Distribution Map, (03/10/2011)



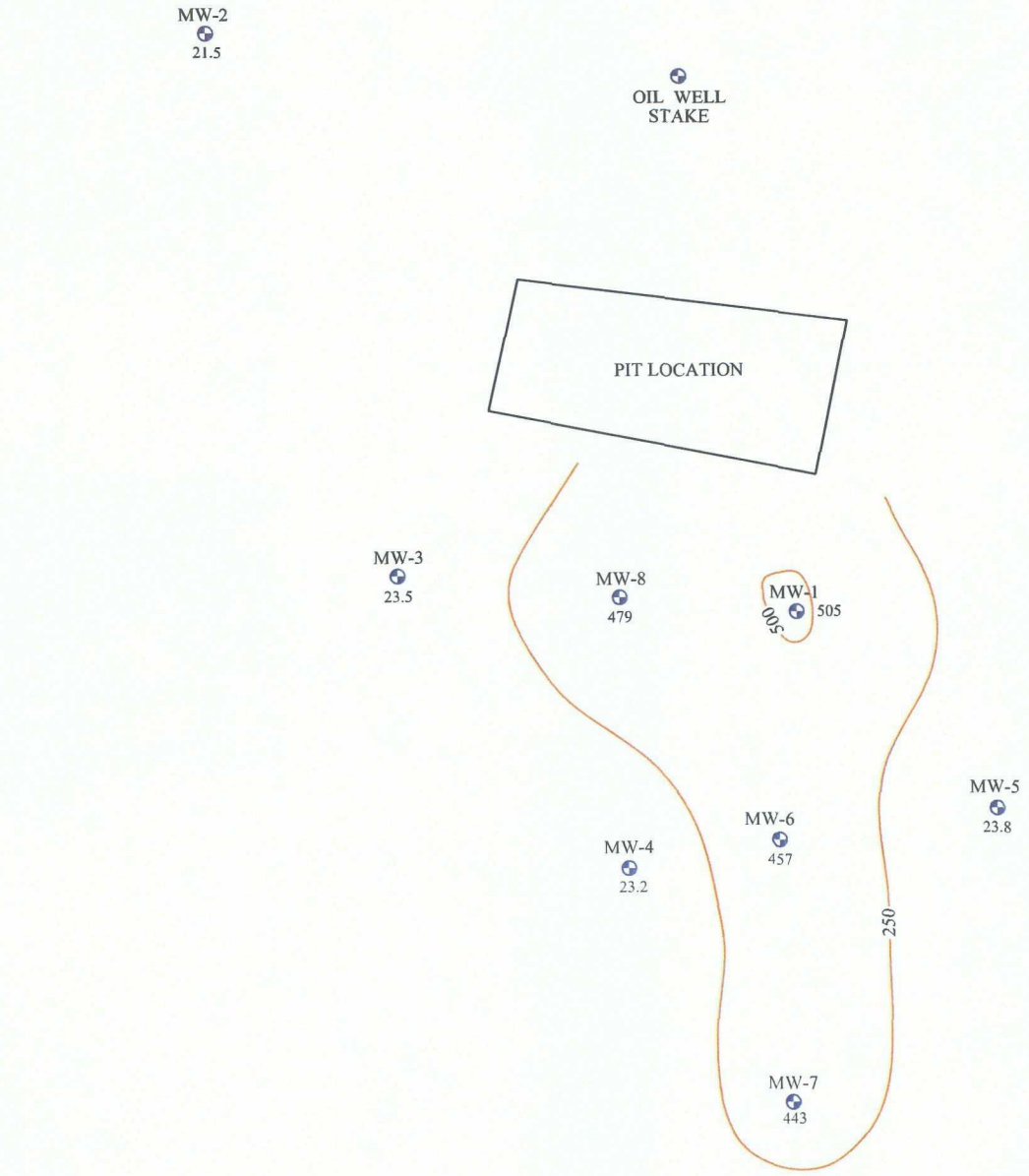
TALON LPE

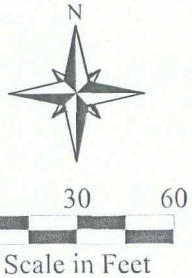
Date: 03/28/2011
Scale: 1" = 60'
Drawn By: TJS

Monsanto '30' State #5

Legacy Reserves Operating, L.P.
Hobbs, Lea County, New Mexico

Figure 3b - Groundwater Chloride Distribution Map, (03/31/2010)





Legend

- Monitor Well
- Soil Boring
- Surface Soil Samples
- Groundwater Gradient Contour Line
- *81.30* - Groundwater Gradient Contour Elevation
- Groundwater Flow Direction
- Groundwater Chloride Contour Line
- *29.6* - Chloride Concentration in ppm

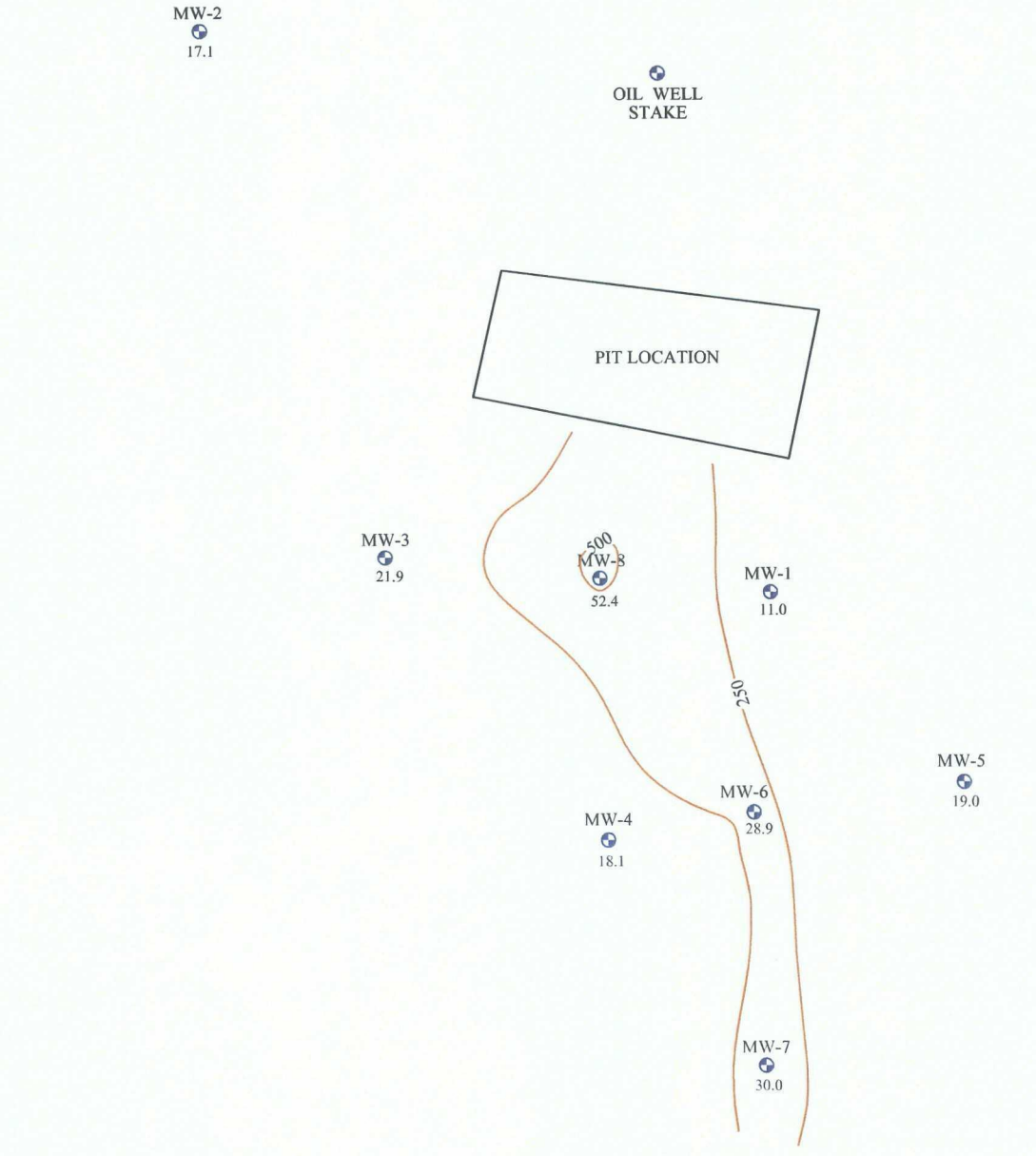
TALON LPE

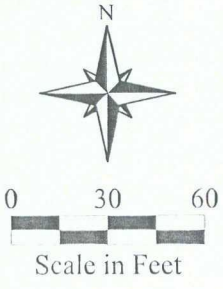
Date: 03/28/2011
Scale: 1" = 60'
Drawn By: TJS

Monsanto '30' State #5

Legacy Reserves Operating, L.P.
Hobbs, Lea County, New Mexico

Figure 3c - Groundwater Chloride Distribution Map, (06/09/2010)





Legend

- Monitor Well
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- *81.30* - Groundwater Gradient Contour Elevation
- Groundwater Flow Direction
- Groundwater Chloride Contour Line
- *29.6* - Chloride Concentration in ppm

TALON LPE

Date: 03/28/2011
Scale: 1" = 60'
Drawn By: TJS

Monsanto '30' State #5
Legacy Reserves Operating, L.P.
Hobbs, Lea County, New Mexico
Figure 3d - Groundwater Chloride Distribution Map, (09/16/2010)

Appendix B

Tables

Table 1 - Summary of Historical Fluid Level Measurements
Table 2 - Summary of Chloride and TDS Groundwater Analytical Data

TABLE 1
SUMMARY OF FLUID LEVEL MEASUREMENTS
LEGACY RESERVES OPERATING, L.P.
MONSANTO '30' STATE #5
NMOCD REF. # 1R-0777
LEA COUNTY, NEW MEXICO
TALON/LPE PROJECT NUMBER 701047.015.01

Monitor Well	Date Gauged	Relative Top of Casing Elevation (ft amsl)	Depth to Water Below Top of Casing (ft btoc)	Groundwater Elevation (ft amsl)
MW-1	03/31/10	3,841.40	95.59	3,745.81
MW-1	06/09/10		95.82	3,745.58
MW-1	09/16/10		97.03	3,744.37
MW-1	03/10/11		96.18	3,648.19
MW-2	03/31/10	3,843.42	96.84	3,746.58
MW-2	06/09/10		97.04	3,746.38
MW-2	09/16/10		98.38	3,745.04
MW-2	03/10/11		97.60	3,745.82
MW-3	03/31/10	3,841.18	95.40	3,745.78
MW-3	06/09/10		95.66	3,745.52
MW-3	09/16/10		96.89	3,744.29
MW-3	03/10/11		96.06	3,745.12
MW-4	03/31/10	3,838.97	93.64	3,745.33
MW-4	06/09/10		93.91	3,745.06
MW-4	09/16/10		95.13	3,743.84
MW-4	03/10/11		94.23	3,744.74
MW-5	03/31/10	NM	95.54	
MW-5	06/09/10		95.76	
MW-5	09/16/10		96.98	
MW-5	03/10/11		96.06	
MW-6	03/31/10	NM	94.57	
MW-6	06/09/10		94.78	
MW-6	09/16/10		95.30	
MW-6	03/10/11		95.12	
MW-7	03/31/10	NM	94.11	
MW-7	06/09/10		94.37	
MW-7	09/16/10		94.75	
MW-7	03/10/11		94.64	

TABLE 1
SUMMARY OF FLUID LEVEL MEASUREMENTS
LEGACY RESERVES OPERATING, L.P.
MONSANTO '30' STATE #5
NMOCD REF. # 1R-0777
LEA COUNTY, NEW MEXICO
TALON/LPE PROJECT NUMBER 701047.015.01

Monitor Well	Date Gauged	Relative Top of Casing Elevation (ft amsl)	Depth to Water Below Top of Casing (ft btoc)	Groundwater Elevation (ft amsl)
MW-8	03/31/10	NM	95.19	
MW-8	06/09/10		95.40	
MW-8	09/16/10		96.70	
MW-8	03/10/11		95.84	

amsl = above mean sea level
btoc = below top of casing

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
LEGACY RESERVES OPERATING, L.P.
MONSANTO '30' STATE #5
NMOCD REF. # 1R-0777
LEA COUNTY, NEW MEXICO
Talon/LPE Project Number 701047.015.01

All concentrations are in mg/L

Sample Location	Sample Date	Chloride	TDS
MW-1	03/31/10	**681**	**1,110**
MW-1	06/09/10	**506**	**11,210**
MW-1	09/16/10	110	566
MW-1	03/11/10	40	412
MW-2	03/31/10	21.4	393
MW-2	06/09/10	21.5	379
MW-2	09/16/10	17.1	377
MW-2	03/11/11	19.0	419
MW-3	03/31/10	20.7	398
MW-3	06/09/10	23.5	372
MW-3	09/16/10	21.8	356
MW-3	03/11/11	21.8	400
MW-4	03/31/10	23.2	348
MW-4	06/09/10	23.2	393
MW-4	09/16/10	18.1	352
MW-4	03/11/11	21.4	399
MW-5	03/31/10	21.1	390
MW-5	06/09/10	23.8	412
MW-5	09/16/10	19.0	347
MW-5	03/11/11	20.9	433
MW-6	03/31/10	**377**	922
MW-6	06/09/10	**457**	**1,020**
MW-6	09/16/10	**289**	934
MW-6	03/11/11	**323**	1,000
MW-7	03/31/10	**418**	940
MW-7	06/09/10	**443**	**1,050**
MW-7	09/16/10	**300**	944
MW-7	03/11/11	**432**	**1,030**
MW-8	03/31/10	**478**	892
MW-8	06/09/10	**479**	**1,010**

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
LEGACY RESERVES OPERATING, L.P.
MONSANTO '30' STATE #5
NMOCD REF. # 1R-0777
LEA COUNTY, NEW MEXICO
Talon/LPE Project Number 701047.015.01

All concentrations are in mg/L

Sample Location	Sample Date	Chloride	TDS
MW-8	09/16/10	**524**	**1,640**
MW-8	03/11/11	**336**	828
NMWQCC Remedial Limits		250	1,000

Bolded *values are in excess of the NMWQCC Remediation Thresholds*

Appendix C

Laboratory Analytical Data Reports and Chain of Custody Documentation

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019 **HUB:** 1752439743100-86536 **DBE:** VN 20657
NCTRCA WFWB38444Y0909

NELAP Certifications

Lubbock: T104704219-08-TX LELAP-02003 Kansas E-10317 **El Paso:** T104704221-08-TX LELAP-02002 **Midland:** T104704392-08-TX

Analytical and Quality Control Report

Steve Killingsworth
Talon LPE-Midland
2901 State Highway 349
Midland, TX, 79706

Report Date: March 22, 2011

Work Order: 11031131

Project Location: Hobbs, NM
Project Name: Monsanto #5
Project Number: 701047.015.01

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
260348	MW-1	water	2011-03-11	11:24	2011-03-11
260349	MW-2	water	2011-03-11	11:29	2011-03-11
260350	MW-3	water	2011-03-11	11:37	2011-03-11
260351	MW-4	water	2011-03-11	11:49	2011-03-11
260352	MW-5	water	2011-03-11	11:40	2011-03-11
260353	MW-6	water	2011-03-11	11:52	2011-03-11
260354	MW-7	water	2011-03-11	11:59	2011-03-11
260355	MW-8	water	2011-03-11	11:50	2011-03-11

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch

basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 10 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director
Dr. Michael Abel, Project Manager

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project Monsanto #5 were received by TraceAnalysis, Inc. on 2011-03-11 and assigned to work order 11031131. Samples for work order 11031131 were received intact at a temperature of 3.6 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (IC)	E 300.0	67336	2011-03-15 at 13:36	79418	2011-03-16 at 11:04
TDS	SM 2540C	67334	2011-03-15 at 13:34	79591	2011-03-21 at 14:06

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11031131 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 260348 - MW-1

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	79418	Date Analyzed:	2011-03-16	Analyzed By:	AR
Prep Batch:	67336	Sample Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		**39.7**	mg/L	5	2.50

Sample: 260348 - MW-1

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	79591	Date Analyzed:	2011-03-21	Analyzed By:	AR
Prep Batch:	67334	Sample Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		**412**	mg/L	1	10.0

Sample: 260349 - MW-2

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	79418	Date Analyzed:	2011-03-16	Analyzed By:	AR
Prep Batch:	67336	Sample Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		**19.0**	mg/L	5	2.50

Sample: 260349 - MW-2

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	79591	Date Analyzed:	2011-03-21	Analyzed By:	AR
Prep Batch:	67334	Sample Preparation:	2011-03-15	Prepared By:	AR

continued ...

sample 260349 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		**419**	mg/L	1	10.0

Sample: 260350 - MW-3

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	79418	Date Analyzed:	2011-03-16	Analyzed By:	AR
Prep Batch:	67336	Sample Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**21.8**	mg/L	5	2.50

Sample: 260350 - MW-3

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	79591	Date Analyzed:	2011-03-21	Analyzed By:	AR
Prep Batch:	67334	Sample Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		**400**	mg/L	1	10.0

Sample: 260351 - MW-4

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	79418	Date Analyzed:	2011-03-16	Analyzed By:	AR
Prep Batch:	67336	Sample Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**21.4**	mg/L	5	2.50

Sample: 260351 - MW-4

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	79591	Date Analyzed:	2011-03-21	Analyzed By:	AR
Prep Batch:	67334	Sample Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		**399**		mg/L	1	10.0

Sample: 260352 - MW-5

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	79418	Date Analyzed:	2011-03-16	Analyzed By:	AR
Prep Batch:	67336	Sample Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**20.9**		mg/L	5	2.50

Sample: 260352 - MW-5

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	79591	Date Analyzed:	2011-03-21	Analyzed By:	AR
Prep Batch:	67334	Sample Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		**433**		mg/L	1	10.0

Sample: 260353 - MW-6

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	79418	Date Analyzed:	2011-03-16	Analyzed By:	AR
Prep Batch:	67336	Sample Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**323**		mg/L	10	2.50

Sample: 260353 - MW-6

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	79591	Date Analyzed:	2011-03-21	Analyzed By:	AR
Prep Batch:	67334	Sample Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		**1000**	mg/L	2	10.0

Sample: 260354 - MW-7

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	79418	Date Analyzed:	2011-03-16	Analyzed By:	AR
Prep Batch:	67336	Sample Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**432**	mg/L	10	2.50

Sample: 260354 - MW-7

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	79591	Date Analyzed:	2011-03-21	Analyzed By:	AR
Prep Batch:	67334	Sample Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		**1030**	mg/L	2	10.0

Sample: 260355 - MW-8

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	79418	Date Analyzed:	2011-03-16	Analyzed By:	AR
Prep Batch:	67336	Sample Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**336**	mg/L	10	2.50

Sample: 260355 - MW-8

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	79591	Date Analyzed:	2011-03-21	Analyzed By:	AR
Prep Batch:	67334	Sample Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		**828**	mg/L	2	10.0

Method Blank (1) QC Batch: 79418

QC Batch:	79418	Date Analyzed:	2011-03-16	Analyzed By:	AR
Prep Batch:	67336	QC Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	MDL Result	Units	RL
Chloride		0.717	mg/L	2.5

Method Blank (1) QC Batch: 79591

QC Batch:	79591	Date Analyzed:	2011-03-21	Analyzed By:	AR
Prep Batch:	67334	QC Preparation:	2011-03-15	Prepared By:	AR

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		12.0	mg/L	10

Duplicates (1) Duplicated Sample: 260355

QC Batch:	79591	Date Analyzed:	2011-03-21	Analyzed By:	AR
Prep Batch:	67334	QC Preparation:	2011-03-15	Prepared By:	AR

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	868	828	mg/L	2	5	10

Laboratory Control Spike (LCS-1)

QC Batch: 79418 | Date Analyzed: 2011-03-16 | Analyzed By: AR
Prep Batch: 67336 | QC Preparation: 2011-03-15 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	23.7	mg/L	1	25.0	<0.265	95	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	23.8	mg/L	1	25.0	<0.265	95	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 79591 | Date Analyzed: 2011-03-21 | Analyzed By: AR
Prep Batch: 67334 | QC Preparation: 2011-03-15 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids	1060	mg/L	1	1000	<9.75	106	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids	1060	mg/L	1	1000	<9.75	106	90 - 110	0	10

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 260355

QC Batch: 79418 | Date Analyzed: 2011-03-16 | Analyzed By: AR
Prep Batch: 67336 | QC Preparation: 2011-03-15 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	603	mg/L	10	275	336	97	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	602	mg/L	10	275	336	97	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1)

QC Batch: 79418 | Date Analyzed: 2011-03-16 | Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	25.0	24.2	97	90 - 110	2011-03-16

Standard (CCV-1)

QC Batch: 79418 | Date Analyzed: 2011-03-16 | Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	25.0	24.3	97	90 - 110	2011-03-16

LAB Order ID # 1103131

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Invoice to: (If different from above)
Project #: 701047015-01
Project Name: Monsanto #5
Project Location (including state): Hobbs, NM
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
260348	MW-1	1	500mL	X								X		3-11-11	1124
349	MW-2														1129
350	MW-3														1137
351	MW-4														1149
352	MW-5														1140
353	MW-6														1152
354	MW-7														1159
355	MW-8														1150

ANALYSIS REQUEST	
MTBE 8021 / 602 / 8260 / 624	
BTEX 8021 / 602 / 8260 / 624	
TPH 418.1 / TX1005 / TX1005 Ext(C35)	
TPH 8015 GRO / DRO / TVHC	
PAH 8270 / 625	
Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7	
TCLP Metals Ag As Ba Cd Cr Pb Se Hg	
TCLP Volatiles	
TCLP Semi Volatiles	
TCLP Pesticides	
RCI	
GC/MS Vol. 8260 / 624	
GC/MS Semi. Vol. 8270 / 625	
PCB's 8082 / 608	
Pesticides 8081 / 608	
BOD, TSS, pH	
Moisture Content	
Cl, Fl, S04, NO3, NO2, Alkalinity	
Na, Ca, Mg, K, TDS, EC	TDS, 300.0 total Chlorides
Turn Around Time if different from standard	
Hold	

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
[signature]	Talon LPG	3-11-11	1400	[signature]	Trace	3/14/11	14:20	INST 3.6 °C
								OBS °C
								COR °C
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST °C
								OBS °C
								COR °C
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST °C
								OBS °C
								COR °C

LAB USE ONLY

Intact Y / N
Headspace Y / N / NA
Log-in-Review

REMARKS:
*All tests - Midland

- [ ] Dry Weight Basis Required
- [ ] TRRP Report Required
- [ ] Check If Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.

Carrier # Courier